

O 72 Implementing a Salmonella Monitoring Programme for Pork in Germany

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Summary: The history of the development of a national *Salmonella* monitoring system and its implementation as the "Salmonella Monitoring and Reduction Programme" in the framework of the development of the voluntary German "Quality and Safety System" (= "QS-System") for food production beginning with the pork production chain is explained. Especially the necessary steps that need to be taken to achieve the acceptance for the implementation of an industry-wide programme in a non-integrated pork industry are alluded to.

Introduction: The basic tools, which are necessary for a Salmonella monitoring and reduction programme for a pork production company or chain, for a region, or an entire national pork industry are known and available. The programme can be based on culturing standardized samples from pigs, feed and farm material as still done in the Scandinavian countries Sweden, Norway and Finland (Engvall et al., 1999), or on the semi-quantitative estimation of the *Salmonella* load of herds, i.e. the risk of herds to carry *Salmonella* spec. into the food production chain via live slaughter pigs, by means of standardized random samples of sera or meat juice from pigs for investigating the frequency of antibodies to *Salmonella* spec. Both methods lead to a quite good benchmarking system comparing the potential *Salmonella* loads of market pigs producing herds, which in its turn leads to the possibility to implement targeted measures for reducing the introduction of *Salmonella* spec. into the slaughter house by slaughter pigs on the one hand, and for reducing the cross-contamination of *Salmonella* spec. from salmonella-infected and/or contaminated pigs onto salmonella-free carcasses during the slaughter process.

However, although the principles are well known and well proven in some countries, their implementation is not easy, especially in non-integrated pork industries. The paper describes the lessons learned from the successful implementation of the "Salmonella Monitoring and Reduction Programme" in the framework of the development of the voluntary German "Quality and Safety System" (= "QS-System") in Germany

The developmental stages of the implementation

1. After the start of the "Danish National Salmonella Surveillance and Control Programme" in the early 1990's (Mousing et al., 1997), a joint investigation on:

- a) the prevalence of Salmonella spec. in healthy slaughter pigs (cecal content and lymph nodes) and of Salmonella antibodies in healthy slaughter pigs (Danish mix-ELISA), and
 - b) the suitability and usability of the Danish mix-ELISA in the German pork industry
- was carried out by several cooperating German institutions (the Fed. Institute of Consumer Health Protection and Veterinary Medicine in Berlin, the Department of Epidemiology of the Federal Institute of Viral Animal Diseases in Wusterhausen, and the Field Station for Epidemiology of the School of Veterinary Medicine of Hannover in Bakum) under the auspices of the federal Ministries of Health and Agriculture (Kaesbohrer et al., 1998).

2. The result of this joint study was that the prevalence of *Salmonella* spec. and the range of serovars found by culturing cecal contents and ileocecal lymph nodes as well as the prevalence of salmonella antibodies detected in 1995 to 1996 were comparable to those that were published by the Danish

Association of Pork Producers and Slaughterhouses and by researchers that had carried out similar explorative studies in other countries such as The Netherlands, Austria etc. It was also concluded that the Danish mix-ELISA was suitable and usable in Germany for a semi-quantitative categorization of market pig herds into three risk levels: low risk, medium risk and high risk based on the experiences from Denmark. Consequently, the Ministry of Agriculture recommended the implementation of a Salmonella Monitoring Programme addressing the farming community and the slaughter and meat processing industry.

3. Several attempts were undertaken to start such a programme on a voluntary basis. However, the effect of the wide range of the organizational structure in the German pork industry and the effect of the competition of the many slaughter plants (> 260 in Germany) for slaughter pigs was underestimated. It is understandable that no slaughter plant wanted to be the first to tell farmers that they are to do something to reduce their *Salmonella* load, since the more or less unprepared pork producers interpreted the testing for *Salmonella* spec. as tool for downgrading their products and started to sell their pigs rather to a slaughter plant that had not (yet) started to test for salmonella antibodies. In other words, a salmonella surveillance programme as marketing tool is easily understood as improvement of the competitiveness of the final pork product in an integrated system exporting pork such as that of Denmark, which needs tools for market leadership in the international market. The same programme without a mechanism for guaranteeing that all slaughter plants start the programme at the same point in time, becomes a "threat" to the farming community in a non-exporting and non-integrated swine production structure such as that of Germany, and even to the forerunners in the slaughter industry as well, since the "frightened" farmers will quit their supply and change their market partner.

4. As consequence, the Ministry of Agriculture understood the necessity of a legal tool for forcing the implementation of such a programme on all participants in the pork industry as a governmental "wish" to gradually reduce the introduction of *Salmonella* spec. into the pork chain.

However, there are several legal difficulties to overcome if there is to be on the one hand the duty of all farmers and slaughterhouses to participate, and on the other hand not to interfere with the principles of the free market system (for instance how to split the costs between the farmers and the slaughterhouse and many other questions). The issue of the planned governmental directive was several times postponed on legal grounds.

5. Meanwhile, the political "climate" towards food production had changed due to the BSE discussions throughout Europe. The Ministry of Consumer Protection and Agriculture, "run" now by Green Party, had started to promote organic food and the declaration of production methods. This led to the need for the "conventional" agricultural production community to develop a quality assurance programme assuring the consumer and the market that the production procedures follow certain quality requirements. The "QS-System" (= a food **Q**uality and **S**afety Management System for guaranteeing the compliance with basic quality criteria throughout the food production chain) was designed through a concerted action between the feed industry, the farmers association, the slaughter industry, the processing industry and the retailers of Germany (Anonymous, 2003). One of the major QS-system modules is the implementation of the "Salmonella Monitoring and Reduction Programme". The participation in the QS system is voluntary, however, for those that decide to participate in QS, the compliance with the salmonella programme is mandatory (more than 1/3 of the German pork producers are participating, which is more than 2/3 of the German pork production).

6. The programme has officially started for all QS participants on April 1, 2003. The guidelines for every partner in the programme (the farmers, the slaughter plants, the laboratories conducting the ELISA test, the central data base, third party auditors and consultants such as veterinary practitioners are published at the QS-system's home page (Anonymous, 2003).

The programme is based on a continuous sampling of meat juice from 60 pigs per herd and year, after the first 60 samples (under 400 pigs per herd there had to be smaller random samples per year, but categorizing starts only after 60 samples). The meat juice samples are tested for *Salmonella*

antibodies with three ELISA tests with the cut-off value of 400D% - the laboratories and the tests are approved by the QS-system (Blaha et al., 2003). The participating herds are categorized into low risk (= < 20% of the samples are serologically positive), medium risk (= > 20% but < 40% of the samples are serologically positive), and high risk (= > 40% of the samples are serologically positive). Starting in April 2004, high risk herds will be slaughtered separately and they will have to implement a farm specific *Salmonella* reduction plan according to the identified specific *Salmonella* sources.

Lessons learned

To achieve the goal that in countries with a highly diversified and non-integrated pork industry a national *Salmonella* monitoring system is accepted by all players in the pork chain and results in a control and reduction programme that the market and the public understand as a doubtless improvement of the national pork production, the following measures need to be taken:

- 1) make sure that all parts of the pork chain have understood the programme's intention before any activity for its implementation (assure the farmers that it will not be misused against them, and prevent processors to misuse it in the competition against each other),
- 2) make sure that everybody understands that a central data base is inevitable for the success of the programme (assure everybody that the data base is accessible to only authorized persons or parties),
- 3) make sure that farmers that are categorized as "high risk" farms get help instead of discrimination (many a well managed high health, high biosecurity, high hygiene farms is initially categorized as *Salmonella* high risk farm!).

Communication for consensus amongst the players in the pork chain is the key of success.

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